

**THE CURRENT STATUS AND PROSPECTS IN ENGLAND OF THE
LARGE HEATH BUTTERFLY *COENONYMPHA TULLIA* MÜLLER
(LEP.: SATYRIDAE)**

HARRY T. EALES

11 Ennerdale Terrace, Low Westwood, Derwentside, Co. Durham NE17 7PN.

IT IS EXACTLY fifty years ago that a similarly titled article was published in the pages of the *Entomologist*, by J.E.H. Blackie (1948). The lapse of time, and the changes in the distribution of this insect during this intervening period, more than justifies a further review of its current status.

Assessments on the distribution of any species can only be made when good, accurate, current data is available. In England a considerable amount of work has been carried out on this insect since 1995. Although this butterfly is known to exist in Wales, Scotland and Ireland its current status in these countries is at present far from clear, due mainly to the considerable amount of drainage which has taken place for the purposes of afforestation, peat extraction and changes in land use, in recent decades. A great deal of research is needed in all three of these countries on the present distribution of this butterfly, to bring them up to a similar standard to that of this species in England.

A study of the historical data available, has shown that numerous colony losses have taken place in England since this species was first detected in 1795. The reasons for these losses are invariably one or more of those given in the previous paragraph. There is only one locality where over-collecting may have been partially responsible. This was in the Delamere Forest, Cheshire. Five small mosses made up the Delamere group of sites. This area was known to produce specimens with the darkest shade of upper wing colouring, and the largest under wing spotting, of this insect to be found anywhere in Britain. As a consequence large numbers of collectors and dealers congregated there during the flight period of the butterfly. The last known specimen from this locality was taken on 11 July 1929. (Turner Coll. Liverpool Museum). Blackie states that his correspondent, Mr A.E. Tonge, informed him that, "The last site was lost by the submergence (flooding) of the breeding area", but no actual date was given for this.

In his article, Blackie noted that records existed for eleven English counties, although the data for some of them was very tenuous. He also made the cardinal error of many an author of books on British butterflies, in that he did not verify the accuracy of the data he was using. Under Durham, he simply copied what Edward Newman (1870) had written, unaware that Newman had accidentally transposed four Northumberland sites into Durham. Newman not noticing his error wrote, "Appears to have been exterminated in Northumberland". An error that was to be repeated by numerous authors, for at least eighty years. A glance at any map of the Northumberland and Durham area would have shown Newman's mistake.

In all, Blackie identified some 40 known sites by name, some of which he knew were already "lost ground". Only six of the sites he mentioned still have this

butterfly present on them. It has been lost on all the others. Of the eleven counties he named in his article, only six still have the butterfly today.

Until the early 1960s virtually all data on Large Heath sites came from insect collectors, who occasionally published their records in the Entomological Press or in County Lists. With the advent of the ITE Butterfly Recording Scheme, the "Entomological Recorder" came rapidly to the fore. But until recently very few additional Large Heath sites were located. This is because most recorders tend to operate in areas where many butterfly species may be found. Unfortunately the Large Heath, because of the type of habitat it frequents, is seldom accompanied by other species, except perhaps by the common, Green-veined White *Pieris napi*, and occasionally, the Small Pearl-bordered Fritillary *Boloria selene*. The very isolation of numerous colonies of the Large Heath deters recorders because of the difficulties encountered in negotiating the often rough terrain between the nearest road access, and many potential sites. Known sites with ease of access, tend to be recorded frequently, and if there are a few sites within a county then there is little or no stimulus, for either the collector or recorder, to look elsewhere within that area for additional new sites where this butterfly may exist.

Many of the older and well known localities frequented by this insect have been lost during the past century. However, the work of a small number of dedicated entomologists scattered throughout the Midlands and north of England has shown that, although there have been many site losses, some sites have survived, and new sites can be, and still are, being located.

It is not the intention of the author to name or indicate by grid reference, any site where this butterfly may be found. He considers that this information is, perhaps, better left unpublished in an effort to reduce the predation on this species by collectors. The exact details of all the currently occupied sites are known to the various organisations involved in the conservation of this insect and its habitat. These include Butterfly Conservation, English Nature, Forestry Commission, Ministry of Defence, certain National Parks, Wildlife trusts etc. All of these organisations are in a position to assist in, or advise on the preservation of this species, rather than its destruction.

With the exception of perhaps some six sites, where the records date from 1992 onwards, all other site records have been made or verified, between 1995 and 1998. All counties mentioned are the post 1974 counties. The rearrangement of county boundaries and the creation of some new administrative areas in that year, altered the county status of some known sites for this butterfly.

The definitions of terminology used in this article in relation to where this species occurs, are as follows:

- | | |
|----------|---|
| Locality | A general area, eg. North York Moors, Solway Mosses, etc. |
| Site | The precise area of a locality where this species is to be found, which has the necessary larval food plant and adult nectar plant in sufficient volume to sustain the species. These areas can vary from as little as one to well over 100 hectares. |

Colony A site which is separated from another, by at least 500 metres of unsuitable habitat. This colony definition is that which is used in *The Large Heath Species Action Plan* (Bourn and Warren, 1997). If two or more sites in an area are within 500m. edge to edge they are regarded as one colony. In certain areas a single colony can involve as many as eight or more sites.

Sites in England vary in altitude from 15m to 470m amsl (none to the best of the author's knowledge have been accurately reported at any higher altitude in Wales, Scotland or Ireland).

Table 1 shows the English Counties where the Large Heath is still to be found, the number of sites within that county and the rationalisation of those sites into colonies, utilising the "Colony Definition". The arrangement of Counties is south to north.

County	Sites	Colonies
Shropshire	3	1
Lincolnshire	1	1
Yorkshire	6	6
Lancashire	2	2
Cumbria	41	31
Northumberland	150	101
Totals	203	142

Table 1.

Location of extant (1998) colonies of *Coenonympha tullia* in England by county area

The final colonies total should however be amended to 141 as the single Lincolnshire site and one Yorkshire site are artificially separated by the Lincs./Yorks. county boundary and are in fact one colony.

A final year's survey work is to be carried out by the author in Northumberland, and some detailed survey work remains to be done in North Yorkshire, where one new colony was detected in 1997 by Mr P. Summers of The Royal Scottish Museum. It is not beyond the bounds of possibility, that this butterfly may occur in other isolated areas in North Yorkshire and perhaps Derbyshire, which have not, as yet, been the subject of systematic examination.

The current status of this insect in Northumberland and Cumbria may appear to be strong, but there was a 20% loss of known sites between 1984 and 1996 in the former county and a 40% loss of historical sites in the latter, prior to 1996. The detection of numerous sites in both these counties over the past three years is not indicative of this butterfly increasing its range, but merely the detection of sites in areas which have not been explored for their entomological interest previously. In all probability, these recently discovered sites have been occupied by this insect for many centuries. Not all of the presently known sites have large or strong populations, many are in various stages of decline, and in several instances this decline is almost certainly terminal.

In England the butterfly occurs on a variety of different mire types, some of which are NNRs, LNRs, or SSSIs. However, unless these reserves are owned outright by a conservation organisation, or the landowners are willing to co-operate in the long term protection of the habitat, there is very little that can be done to stop the continued destruction of sites by commercial concerns (peat extraction, private afforestation) or by landowners wanting to "improve" their land for agricultural purposes. Several SSSIs have had, or are in the process of having, their peat reserves commercially extracted, and the Large Heath has been either exterminated or is under threat of extinction on these sites.

The future prospect for this butterfly in a European context is not promising. At the present time the Large Heath is in a severe decline and is almost extinct in some countries.

From a more positive viewpoint it should be noted that several Government Agencies which have a large land-holding, such as the Forestry Commission and the Ministry of Defence, are very active in conservation of many species including the Large Heath, when they are aware of the occurrence of this insect on their lands. National Parks can offer *Stewardship Agreements* to help preserve bogland habitat, and they do take an active part in mire restoration. There are certain National Trust properties where the Large Heath is still to be found. This latter organisation carries out biological surveys and habitat restoration work on its property, but its powers to conserve Large Heath habitat are perhaps, on occasion, limited by the terms of the tenancy agreements with the farmers occupying the land.

There is little doubt that this butterfly will continue to be a resident breeding species within England for many decades to come, especially in the most northern counties. But the current destruction of its habitat continues, and the decline of this species will follow this destruction. It will not be until all suitable mire habitats receive legally enforceable protection, that this decline will abate.

Acknowledgements

It would be impractical to list everyone who has kindly provided information for this article, but the author wishes to thank all those who contributed records, and especially the following who have supplied detailed survey material to him, over the past three years, from various counties in England. Dr J. Joy, Mr C.W. Plant, Mr Martin Wain, Mr Martin C. White, Mr P.C. Rowarth, Mr P. Summers, officials of English Nature, the Invertebrate Sites Register, the National Trust, the Northumberland National Park, the Northumberland Wildlife Trust, the Institute of Terrestrial Ecology and Butterfly Net. Grant aid and other valuable assistance contributing towards the Large Heath Survey Project in Northumberland, was supplied by Butterfly Conservation, English Nature, the British Ecological Society, Forest Enterprise, Northumbrian Water, the Otterburn Training Area, (MOD), the Northumberland National Park, the Northumberland Wildlife Trust and the Viscount Ridley Trust.

References and bibliography

Some of the surveys and reports used are limited circulation documents and have not been published and are signified by the letter (R).

Blackie, J.E.H., 1948. The History, Status and Prospects in England of *Coenonympha tullia* Müller. *Entomologist*. **81**: 229-235.

Bourn, N.A.D. & Warren, M.S., 1997. *Species Action Plan. Large Heath*. Butterfly Conservation. Dorset.

Eales, H.T., 1995. *A Revision of the Status of The Large Heath Butterfly in Northumberland*. (R)

–, 1996. *A Revision of the Status of The Large Heath Butterfly in Northumberland*. (R)

–, 1997a. *A Revision of the Status of The Large Heath In Northumberland*. (Abstract) *Bulletin of the British Ecological Society*. **28**: 108-109.

–, 1997b. *A Revision of the Status of The Large Heath Butterfly in Northumberland*. (R)

–, 1997c. *Sites in England from which The Large Heath Butterfly has been recorded since its discovery as a British species in 1795*. (R)

–, 1998. *A Revision of the Status of The Large Heath Butterfly in Northumberland*. (R)

Joy, J., 1992. The Ecology and Life History of The Large Heath Butterfly on the Shropshire/Clwyd Mosses. *Bulletin of the British Ecological Society* **22**:114-119.

Joy, J. and Westhead, M., 1992. *The Current Status of The Large Heath on Fenn's & Whixall Moss*. (R)

Newman, E., 1870. *Illustrated Natural History of British Butterflies and Moths*. London.

Plant, C.W., 1995. *A Survey of The Large Heath at Thorne, Crowle, Goole and Hatfield Moors*. (R)

Rowarth, P.C., 1997. *The Large Heath Butterfly in South Yorkshire and North Lincolnshire*. (R)

Swaay, C.A.M. Van, Warren, M.S. & Grill, A., 1997. *Threatened Butterflies in Europe – Provisional Report*. De Vlinderstichting (Dutch Butterfly Conservation), Wageningen. The Netherlands and British Butterfly Conservation, Wareham, UK.

Wain, M., 1996. *A Revision of the Status of The Large Heath Butterfly in Cumbria*. (R)

–, 1996a. *A Review of The Large Heath Butterfly on The Solway Mosses*. Cumbria. 1996. (R)

–, 1997. *The Distribution of The Large Heath Butterfly in Cumbria 1997, with a Review of its Historical Records*. (R)

–, 1997a. *The Distribution of The Large Heath Butterfly in Lancashire*. (R)

White, M.C., 1995. *The Large Heath on Crowle Moor*. (Unpublished, privately circulated document)

Databases consulted: Institute of Terrestrial Ecology. (BRC); Invertebrate Site Register (English Nature); Butterfly Net. (British Butterfly Conservation).

The author has established a computer data base exclusively for recording historical and current records of the Large Heath. He would be very grateful for any records of this species from anywhere within the British Isles. All information will be kept confidential.

Philereme vetulata (D.& S.)(Lep.: Geometridae) new to Co. Clare

A larva of *Philereme vetulata*, the Brown Scallop, was beaten from alder buckthorn *Rhamnus catharticus* L. on 20 May 1998 at Loch Bunny in the Burren district of Co. Clare, Ireland. The adult moth emerged the following month. This species was recorded in 1996 from the neighbouring county of Galway (Skinner, B., 1998. *Colour identification guide to moths of the British Isles*. Viking) but does not appear to have been reported previously from Clare.— ALAN JENKINS, 79 Westmoreland Terrace, London SW1.